MATHEMATICS MAGAZINE

Supplement to Volume 35, Number 1

Index to Volume 34 September 1960 through December 1961

ARTICLES BY TITLE

A Classroom Presentation of the Definite Integral – *Jerome Manheim* 157
A Correction to Ideals of Square Summable Power Series by James Rovnyak – *James Rovnyak* 41
A Generalization of the Congruence $r^x \equiv x \pmod{p}$ – *Roger Osborn* 349
A Graphical Determination of the Nature of the Roots of a Cubic – *Morton J. Hellman* 221
A Mathematical Proof – What It Is and What It Should Be – *Robert Alan Melter* . 407
An Analytic Method for the Difficult Crossing Puzzles – *Benjamin L. Schwartz* . 187
An Analytical Method for Solving Basic Inequalities – *R. K. Coburn* 345
A New Look at $e^{i\theta} = \cos\theta + i \sin\theta$ – *Henry Albaugh* 285
A Note on Equations and Inequalities – *William A. Small* 283
A Note on Linear Differential Equations With Constant Coefficients – *Arthur H. Kruse* 391
A Note on Mathematics and Philately – *C. F. Pinska* 169
A Note on the Indical Equation – *William Squire* 226
A Note on the Limit of $f(x)/f'(x)$ – *Paul Schaefer* 268
A Note on the Probabilistic Inequalities – *H. P. Kuang* 245
A Numerical Congruence – *Charles W. Trigg* 358
A Problem About Geodesics – *A. R. Amir-Moez* 211
A Problem in Relativity – *A. K. Rajagopal* 10
A Rectified Equality – *C. W. Trigg* 163
Arithmetic Progressions of N Relatively Prime Integers – *Sam Matlin* 29
A Simple Approach to the Factorization of Integers – *William Edward Christilles* 411
A Simple Iteration Algorism for Generating $\cos nx$ and $\sin nx$ – *Edgar Karst* . 271
A Theorem Concerning Prime Numbers – *Roger Crocker* 316
A Theorem On Determinants – *Charles W. Trigg* 328
Bertrand Curves Associated with a Pair of Curves – *John F. Burke* 60
Bisection of Yin and Yang – *C. W. Trigg* 107
Comment on Resistance Circuits and Things Synthesized By Number Theory – *Melvin Hochster* 233
Comments On Mathematics and Philately – *Kurt R. Biermann* 297
Conic Sections in the Elliptic Plane – *Dwight B. Goodner* 81
Cryptographic Slide Rules – *Jack Levine* 322
Curiosa From 1961 – *Charles W. Trigg* 321
Determinants for 1961 – *C. W. Trigg* 194
Determinant with Square Value Independent of Four Elements – *C. W. Trigg* . 385
Evaluation of Determinants by Congruencies – *Ernest W. Valyocsik* 218
Finite Differences and Computation of Polynomials – *Luis De Greiff B.* . . . 401
Finite Surfaces A Study of Finite 2-Complexes – *E. F. Whittlesey* 11
Getting Squared Away in 1961 – *C. W. Trigg* 168
Higher Order Approximations to Solutions of Transcendental Systems – *C. E. Maley* 97
Integer Solutions of $AB/(A+B)$ – *C. W. Trigg* 119
Keep the Signless Numbers – *William R. Ransom* 156
Line Integrals in a Multiply Connected Region – *Arthur B. Brown* 230
Mathematical Analysis of the Parallel Parking Problem – *William A. Allen* . 63

Mathematical Heredity – *G. G. Becknell* 23
Mathematics and Philately – *Maxey Brooke* 31
Matrices, Relations, and Graphs – *F. D. Parker* 5
More About the Normal Equation of the Line $Ax+By+C=0$ – *C. N. Mills* . . 35
Multiple Interpretations of Some Integrals – *Verner E. Hoggatt* 207
On Congruence Properties of Legendre Polynomials – *S. K. Chatterjea* 329
On the Arzelà-Ascoli Theorem – *J. W. Green and F. A. Valentine* 199
On the Coefficients of $\cosh x/\cos x$ – *M. S. Krick* 37
On the Digital Roots of Perfect Numbers – *Maxey Brooke* 100
On the Elementary Approach to Diophantine Equations – *Oliver Gross* 259
Palindromic Cubes – *C. W. Trigg* 214
Permutation Ordering and Identification – *Peter Shahdan* 353
Permutations from 1961 – *C. W. Trigg* 406
Prime Portions of 1961 – *C. W. Trigg* 274
Representation of n^r by n^p Consecutive Gnomons – *Russell V. Parker* 101
Resistance Circuits and Things Synthesized by Number Theory – *Arne Benson* 125
Row Rank and Column Rank of a Matrix – *Stephan A. Andrea and Edward T. Wong* 33
Satellite Mechanics – *Verner E. Hoggatt* 249
Similarity Classifications of Complex Matrices – *John S. Lamont, John E. Maxfield, and R. G. Selfridge* 147
Some Congruence Properties of the Legendre Polynomials – *L. Carlitz* 387
Some Groups of Linear Transformations in the Plane – *G. H. Lundberg* 375
Some Interesting Algebraic Identities – *William S. McCulley* 203
Some Notes On the Mean Difference – *John P. Gill* 223
Some Old Slants and a New Twist to the Cone – *Daniel B. Lloyd* 293
Some Relations Involving The Finite Harmonic Series – *H. W. Gould* 317
Some Special Series – *B. E. Rhoades* 165
Straddles on Semigroups – *S. P. Franklin and John W. Lindsay* 269
Strobogrammatic Years – *J. M. Howell* 182
Successive Differentiability – *L. H. Lange* 275
Teaching Inverse Trigonometric Functions – *Raymond S. Potter* 281
Terminal Digits of $MN(M^2-N^2)$ – *C. W. Trigg* 159
Terminal Digits of $MN(M^2-N^2)$ a Correction and an Extension – *C. W. Trigg* . 233
The Amateur Mathematician – *Brother U. Alfred* 311
The Evaluation of Summations with Binomial Coefficients – *F. S. Nowlan* . . 161
The Extension of Pascal's Theorem – *C. E. Maley* 289
The Projection of a Vector on a Plane – *H. Randolph Pyle* 195
The Schnitzelbank School of Mathematical Pedagogy – *Ya. I. M. Fedëp* . . . 340
The Staudt-Clausen Theorem – *L. Carlitz* 131
Transformations and Optics – *George M. Bergman* 215
Tree of Compositions – *Irving J. Gabelman* 95
Use of Matrices For Study of Plane Sections of a Quadric – *R. D. H. Jones* . 337
We Should Teach our Students About Mathematics – *Louis R. McCreery* . . . 153
What Color Was the Bear? – *Benjamin L. Schwartz* 1

ARTICLES BY AUTHORS

Albaugh, Henry – A New Look at $e^{i\theta} = \cos\theta + i\sin\theta$ 285
Alfred, Brother U. – The Amateur Mathematician 311
Allen, William A. – Mathematical Analysis of the Parallel Parking Problem . 63
Amir-Moéz, A. R. – A Problem About Geodesics 211
Andrea, Stephan A. and Edward T. Wong – Row Rank and Column Rank of a Matrix 33

Becknell, G. G. – Mathematical Heredity 23
Benson, Arne – Resistance Circuits and Things Synthesized by Number Theory 125
Bergman, George M. – Transformations and Optics 215
Biermann, Kurt R. – Comments On Mathematics and Philately 297
Brooke, Maxey – Mathematics and Philately 31
——— – On the Digital Roots of Perfect Numbers 100
Brown, Arthur B. – Line Integrals in a Multiply Connected Region 230
Burke, John F. – Bertrand Curves Associated with a Pair of Curves 60
Carlitz, L. – Some Congruence Properties of the Legendre Polynomials . . . 387
——— – The Staudt-Clausen Theorem 131
Chatterjea, S. K. – On Congruence Properties of Legendre Polynomials . . . 329
Christilles, William Edward – A Simple Approach to the Factorization of Integers 411
Coburn, R. K. – An Analytical Method For Solving Basic Inequalities 345
Crocker, Roger – A Theorem Concerning Prime Numbers 316
DeGreiff B., Luis – Finite Differences and Computation of Polynomials . . . 401
Fedëp, Ya. I. M. – The Schnitzelbank School of Mathematical Pedagogy . . . 340
Franklin, S. P. and John W. Lindsay – Straddles on Semigroups 269
Gabelman, Irving J. – Tree of Compositions 95
Gill, John P. – Some Notes on the Mean Difference 223
Goodner, Dwight B. – Conic Sections in the Elliptic Plane 81
Gould, H. W. – Some Relations Involving The Finite Harmonic Series 317
Green, J. W. and F. A. Valentine – On the Arzela-Ascoli Theorem 199
Gross, Oliver – On the Elementary Approach to Diophantine Equations 259
Hellman, Morton J. – A Graphical Determination of the Nature of the Roots of a Cubic 221
Hochster, Melvin – Comment on Resistance Circuits and Things Synthesized By Number Theory 233
Hoggatt, Verner E. – Multiple Interpretations of Some Integrals 207
——— – Satellite Mechanics 249
Howell, J. M. – Strobogrammatic Years 182
Karst, Edgar – A Simple Iteration Algorism for Generating $\cos nx$ and $\sin nx$. 271
Krick, M. S. – On the Coefficients of $\cosh x/\cos x$ 37
Kruse, Arthur H. – A Note On Linear Differential Equations With Constant Coefficients 391
Kuang, H. P. – A Note on the Probabilistic Inequalities 245
Jones, R. D. H. – Use of Matrices For Study of Plane Sections of a Quadric . 337
Lamont, John S., John E. Maxfield, and R. G. Selfridge – Similarity Classifications of Complex Matrices 147
Lange, L. H. – Successive Differentiability 275
Levine, Jack – Cryptographic Slide Rules 322
Lindsay, John W. – See *Franklin, S. P.*
Lloyd, Daniel B. – Some Old Slants and a New Twist to the Cone 293
Lundberg, G. H. – Some Groups of Linear Transformations in the Plane . . . 375
Maley, C. E. – Higher Order Approximations to Solutions of Transcendental Systems 97
——— – The Extension of Pascal's Theorem 289
Mamheim, Jerome – A Classroom Presentation of the Definite Integral 157
Martin, Sam – Arithmetic Progressions of N Relatively Prime Integers 29
Maxfield, John E. – See *Lamont, John S.*
McCreery, Louis R. – We Should Teach Our Students About Mathematics . . . 153
McCulley, William S. – Some Interesting Algebraic Identities 203
Melter, Robert Alan – A Mathematical Proof – What It Is and What It Should Be . 407
Mills, C. N. – More About the Normal Equation of the Line $Ax+By+C=0$ . . 35
Nowlan, F. S. – The Evaluation of Summations with Binomial Coefficients . . 161

Osborn, Roger – A Generalization of the Congruence $r^x \equiv x \pmod{p}$ 349
Parker, F. D. – Matrices, Relations, and Graphs 5
Parker, Russell V. – Representation of n^r by n^p Consecutive Gnomons 101
Pinzka, C. F. – A Note on Mathematics and Philately 169
Potter, Raymond S. – Teaching Inverse Trigonometric Functions 281
Pyle, H. Randolph – The Projection of a Vector on a Plane 195
Rajagopal, A. K. – A Problem in Relativity 10
Ransom, William R. – Keep the Signless Numbers 156
Rhoades, B. E. – Some Special Series 165
Rovnyak, James – A Correction to Ideals of Square Summable Power Series by James Rovnyak 41
Schaefer, Paul – A Note on the Limit of $f(x)/f'(x)$ 268
Schwartz, Benjamin L. – An Analytic Method for the Difficult Crossing Puzzles 187
——— – What Color Was the Bear? 1
Selfridge, R. G. – See *Lamont, John S.*
Shahdan, Peter – Permutation Ordering and Identification 353
Small, William A. – A Note on Equations and Inequalities 283
Squire, William – A Note on the Indical Equation 226
Trigg, Charles W. – A Numerical Congruence 358
——— – A Rectified Equality 163
——— – A Theorem On Determinants 328
——— – Bisection of Yin and of Yang 107
——— – Curiosa From 1961 321
——— – Determinants for 1961 194
——— – Determinant with Square Value Independent of Four Elements 385
——— – Getting Squared Away in 1961 168
——— – Integer Solutions of $AB/(A+B)$ 119
——— – Palindromic Cubes 214
——— – Permutations from 1961 406
——— – Prime Portions of 1961 274
——— – Terminal Digits of $MN(M^2-N^2)$ 159
——— – Terminal Digits of $MN(M^2-N^2)$ a Correction and an Extension 233
Valentine, F. A. – See *Green, J. W.*
Valyocsik, Ernest W. – Evaluation of Determinants by Congruencies 218
Whittlesey, E. F. – Finite Surfaces A Study of Finite 2-Complexes 11
Wong, Edward T. – See *Andrea, Stephen A.*

PROBLEMS AND QUESTIONS

Contributors

Numbers refer to pages. Bold type indicates a problem solved and solution published; italics, a problem solved but solution not published; ordinary type, a problem proposed.

Alfred, Brother U. 299, *301, 307, 366, 368, 427*
Andersson, Josef *110, 174, 175, 176, 177, 178,* **178,** *179, 180, 364, 365, 366, 368, 369, 371,* **371**
Andrushkiw, Joseph 363
Anning, Norman 299
Babikian, Souren 174, *371*
Bailey, D. Moody *53,* 109, *115, 176, 303*
Bankoff, Leon 110, 174, *176, 301, 306, 372*
Barnebey, Merrill *427*
Bird, Marian T. *371*
Bissinger, Barney *113, 179,* 299

Bissonnette, Donald K. *427*
Bohac, Joseph B. *306*
Breault, D. A. *51, 52, 57, 118, 239,* **300,** *306*
Brooke, Maxey 49, *51, 175,* 237, *239, 301, 307,* 425, *427*
Brown, J. L., Jr. **54, 111,** *177, 178, 300, 305*
Brunson, Allen W. *177*
Buschman, R. G. *51,* **53,** *57,* **58**
Cappel, K. L. *180*
Carlitz, Leonard 49, *51, 177, 178,* **240, 301,** 363, **370, 431**
Carver, Walter B. *54, 118*
Churchyard, James 50
Clark, Robert H. *366, 427, 430*
Clawson, J. W. *53, 113,* **114,** *118, 369, 372*
Court, Nathan Altshiller *53*
Demir, Huseyin 49, *51, 52, 53,* **54, 55,** *57, 58,* 109, *113, 115, 116, 118, 118, 118,* 174, **175,** *177, 178, 178, 180,* 237, **239,** *241, 301,* **303,** *305, 306, 307,* 364, **365,** *366,* **368,** *371, 372, 427, 430,* **432**
Dernham, Monte *180, 427*
Ferguson, James C. *177, 178*
Frankel, E. R. 50, *243, 307*
Gallego-Diaz, J. *433*
Gandhi, J. M. 364
Gehman, Harry M. *51,* **52,** *54*
Goldberg, Robert P. 425
Gopalan, M. N. *114*
Gotterfried, Leo Von **307**
Hausman, B. A. *301*
Hochster, Melvin *50,* 238, *432*
Hoggatt, Vern *301*
Hoo, Cheong Seng *431*
Hordam, A. F. *176,* **176,** *178*
Howell, J. M. *54*
Ivanoff, V. F. *58,* 237, **429**
James, Glenn D. 425
Kantor, William *241*
Kascei, Michael J. Z., Jr. *307*
Kilmoyer, Robert *118*
Klamkin, M. S. 50, *51,* 109, 173, *242,* 363, *427, 431*
Kokar, A. J. *51, 52*
Konhauser, Joseph D. E. *113,* **117,** *175, 177, 178, 178,* **179, 241,** *305, 306, 307,* 425, *427*
Kravitz, Sam *239*
Kravitz, Sidney *52, 175, 178, 239, 301*
Krick, M. S. 109, *305*
Lajos, S. *177*
Lang, Gaines B. *119*
Laurer, Annie L. **302,** *305*
Leifer, Herbert R. **426**
Lewyckyj, Rostyslaw *52, 54, 57*
Mellender, James W. 299, *306, 366, 369, 433*
Mills, C. N. 363
Moore, Douglas H. **430**
Morduchow, M. **110,** *119*
Moser, Leo *51*
Moser, W. O. J. *115*
Moyers, Ernest E. *52*
Parker, F. D. *52, 57, 303,* **304,** *306, 307*
Parker, R. V. *243*
Pascual, Michael J. *305,* **305,** *307*
Pinzka, C. F. **51,** *52, 57, 57, 113, 115, 116, 118, 118,* **118, 175,** *177, 178, 241, 364, 365,* **365,** *366*
Pleijel, Arne *51, 52, 58*
Ploch, Peter **366**
Rao, D. Rameshwar 425
Riley, Merle E. *430*
Ringenberg, Lawrence A. **112,** *119, 305, 306, 307*
Robinson, D. W. **302**
Ruggles, I. Dale *242,* **364**
Sapkarov, Ilija *242*
Schwartz, Benjamin L. 173, 300
Schwerdtfeger, H. 300
Shafer, Robert E. *51, 52*
Sidlo, Clarence M. *52, 180*

Silverman, David L. 50, 299, *301, 307, 365,* 325
Squire, William *51, 52, 58,* 110, *110, 113, 118, 119, 177,* **177,** *178, 307*
Starke, E. P. 426
Stephanie, Sister M. **53, 241,** *306*
Sutcliffe, Alan *427,* **427**
Sutherland, C. D. *305*
Teachout, William B., Jr. *179*
Thebault, Victor *177,* 238
Thomas, J. B. *427,* **429**
Thomas, P. D. *241,* **242,** *366,* **370,** *372, 427, 431, 433*
Thoro, Dmitri **57,** 109, **113, 243,** *302*
Tih-Ming, Lee 173, *366*
Trigg, C. W. **115,** *118,* 173, *175, 177, 180,* 238, *241,* 363, *366,* **367,** *372, 427, 430*
Vasic, P. *113, 115, 118*
Vigder, J. S. *51*
Wade, Roger *366*
Walden, Harvey *52, 54, 177,* **239,** *241, 306, 307*
Wang, Chih-Yi *51, 52, 57, 57, 178,* **179**
Weesakul, B. 238, *431*
Wilson, Hazel S. *175, 306*
Woods, Dale *51, 52,* **118,** *175 301, 306, 366, 427*

Solutions

The page on which a solution appears is in the parentheses following the number of the problem.

397(51), 398(51), 399(52), 400(53), 401(54), 402(57), 403(58), 404(110), 406(114), 407(115), 408(117), 409(118), 410(118), 411(174), 412(175), 413(176), 414(177), 415(178), 416(178), 417(179), 418(238), 419(239), 420(240), 421(241), 422(242), 424(242), 425(300), 426(302), 427(303), 428(303), 429(304), 430(305), 431(306), 423(364), 432(365), 433(366), 434(367), 435(368), 436(370), 437(371), 438(371), 439(426), 440(427), 441(428), 442(429), 443(430), 444(431), 445(432)

Quickies

268, 269 (58)
270, 271 (120)
272 (181)
273, 274 (182)
275, 276, 277, 278, 279, 280 (244)
281, 282, 283, 284, 285 (308)
286, 287 (373)
288, 289 (435)

Trickies

39, 40 (120)
41, 42, 43 (182)
44, 45 (309)
46, 47, 48 (435)

Falsies

18, 19 (120)

BOOK REVIEWS

Following the title of the book reviewed is the name of the reviewer and the page on which the review appeared.

Agnew, Ralph Palmer; *Differential Equations*; H. J. Ettlinger; 105
Churchill, Ruel V.; *Complex Variables and Applications*; H. J. Ettlinger; 106
Davenport, H.; *The Higher Arithmetic*; J. M. C. Hamilton; 236
Félix, Lucienne; *Exposé Moderne des Mathématiques Elementaires*; Souren Babikian; 170
Fort, Tomlinson; *Differential Equations*; Bernard G. Grunebaum; 360
Greenspan, Donald; *Theory and Solution of Ordinary Differential Equations*; Pasquale Porcelli; 43
Gregory, Robert H. and Richard L. Van Horn; *Automatic Data-Processing Systems*; Richard V. Andree; 418
Hill, M. A., Jr. and J. B. Linker; *A Brief Course in Analytics*; R. E. Horton; 104
Kent, James R. F.; *Differential and Integral Calculus*; R. E. Horton; 46
Littlewood, D. E.; *The Skeleton Key of Mathematics*; J. M. C. Hamilton; 236
Mack, Sidney F.; *Elementary Statistics*; B. K. Gold; 44
McBrien, V. O.; *Introductory Analysis*; Robert E. Horton; 361
Modern High School Physics: A Recommended Course of Study; J. M. C. Hamilton; 45
Ostrowski, A. M.; *Solution of Equations and Systems of Equations*; D. Greenspan; 359
Partial Differential Equations and Continuum Mechanics; I. S. Sokolnikoff; 419
Rainville, Earl D.; *Special Functions*; H. S. Wall; 169
Rainville, Earl D.; *Special Functions*; H. W. Gould; 420
Recreational Mathematics Magazine; Charles W. Trigg; 417
Reid, Constance; *From Zero to Infinity*; J. M. C. Hamilton; 43
Reid, Constance; *Introduction to Higher Mathematics*; J. M. C. Hamilton; 43
Russell, Donald S.; *Algebra Problems*; Robert E. Horton; 235
Sedov, L. I.; *Similarity and Dimensional Methods in Mechanics*; George Chertock; 104
Sutton, O. G.; *Mathematics in Action*; R. E. Horton; 45